PES UNIVERSITY ONLINE

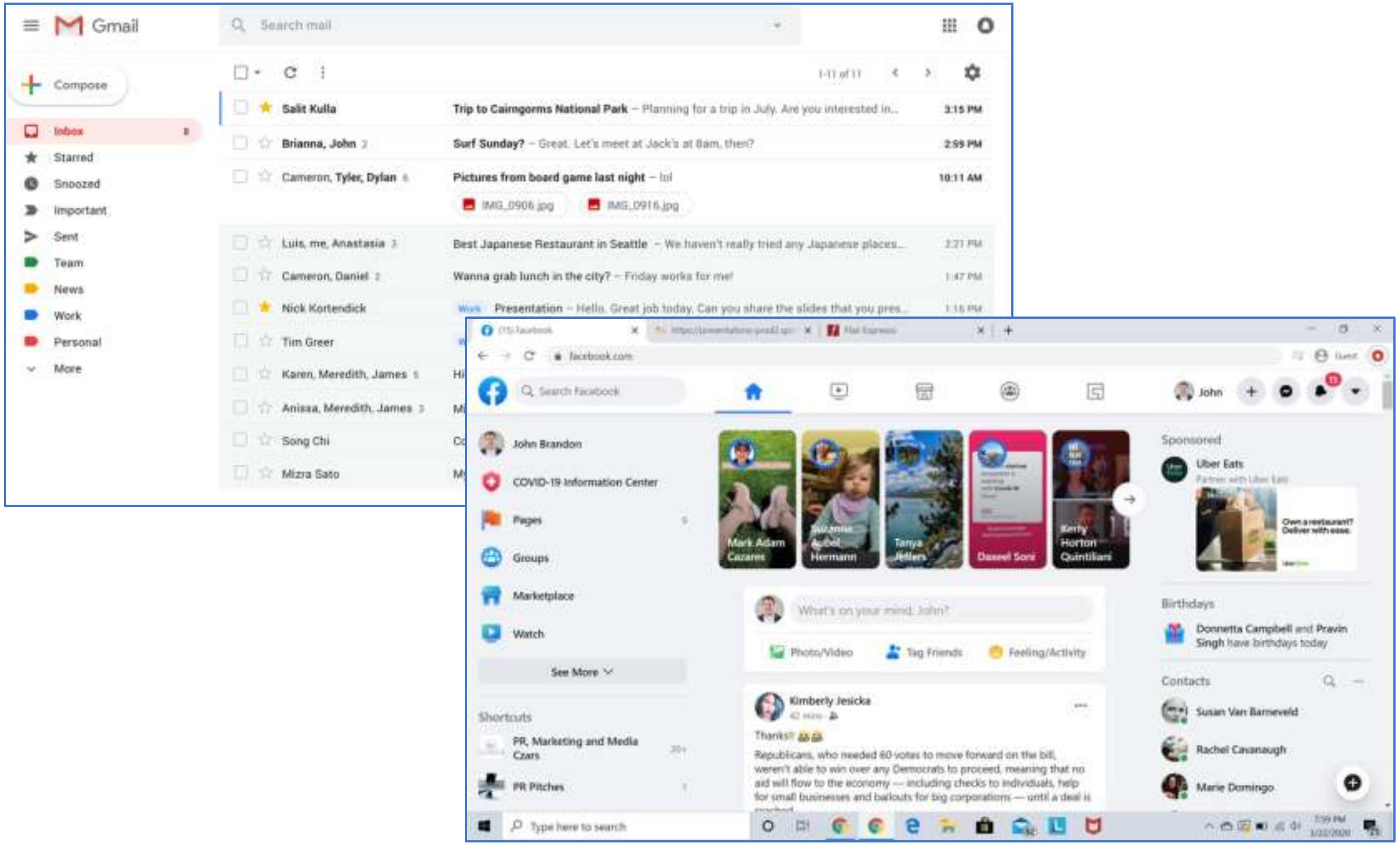
WEB TECHNOLOGIES

Single Page Applications & Asynchronous Communication

Vinay Joshi
Department of
Computer Science and Engineering

Single Page Applications

Introduction



Salit Kulla — Trip to Cairngorms National Park – Planning for a trip in July. Are you interested in... 3:15 PM

Brianna, John 2 — Surf Sunday? – Great. Let's meet at Jack's at 8am, then? 2:59 PM

Cameron, Tyler, Dylan 6 — Pictures from board game last night – lol 10:11 AM — IMG_0906.jpg IMG_0916.jpg

Luis, me, Anastasia 3 — Best Japanese Restaurant in Seattle – We haven't really tried any Japanese places... 2:21 PM

Cameron, Daniel 2 — Wanna grab lunch in the city? – Friday works for me! 1:47 PM

Nick Kortendick — Work Presentation – Hello. Great job today. Can you share the slides that you pres... 1:16 PM

Tim Greer

Karen, Meredith, James 5

Anissa, Meredith, James 3

Song Chi

Mizra Sato

Kimberly Jesicka

Thanks!!

Republicans, who needed 60 votes to move forward on the bill, weren't able to win over any Democrats to proceed, meaning that no aid will flow to the economy — including checks to individuals, help for small businesses and bailouts for big corporations — until a deal is reached.

Introduction

- Instead of the default method of the browser loading entire new pages, a single-page application (SPA) interacts with the web browser by dynamically rewriting the current web page with new data from the web server
- Resources are dynamically loaded and added to the page as necessary, usually in response to user actions
- The page does not reload at any point in the process, nor does it transfer control to another page

- Can be built using
  - AJAX
  - Frameworks like ReactJS, AngularJS

Asynchronous Communication

AJAX

- Traditional web applications, upon request from user like clicking a link or submitting a form, a new page is loaded with requested resources
- Asynchronous applications, upon user action, updates a part of the page without reloading the entire page
- Approaches include
  - Setting src property of iFrame or img element
  - A more elegant and complete approach is use of XHR or XMLHttpRequest object

- First create an XHR object using

var xhr = new XMLHttpRequest();

Asynchronous Communication

XHR object properties and methods

Properties / Methods	Description
open(*method, url [, asynchronous]*)	Initializes the request in preparation for sending to the server. The *method parameter is the HTTP method to use,* for example “GET” or “POST”. The *url is the relative or absolute URL the* request will be sent to. The optional *asynchronous parameter* indicates whether *send() returns immediately or after the* request is complete (default is true, meaning it does not wait for response to come back)
onreadystatechange	Function to call whenever the readyState changes
send([*body*])	*Initiates the request to the server. The body parameter* should contain the body of the request, i.e., a string containing *fieldname=value&fieldname2=value2… for POSTs* or a null value for GET request

Asynchronous Communication

XHR object properties and methods

Properties / Methods	Description
readyState	Integer indicating the state of the request, either: 0 (uninitialized) 1 (loading) 2 (response headers received) 3 (some response body received) 4 (request complete)
status	HTTP status code returned by the server (e.g., 200, 404, etc.)
responseText	Full response from the server as a string (responseType property is set to “text” – default)
responseXML	A Document object representing the server’s response parsed as an XML document (responseType property is set to “document”)
response	Any other type of response received ((responseType property is set to “blob” or “json”)

Asynchronous Communication

XMLHttpRequest – Code Example

```
let xmlhttp = new XMLHttpRequest();
xmlhttp.open("GET", filepath, true);
xmlhttp.onreadystatechange=handler;
[xmlhttp.responseType=“json”|“document” |“blob”] // default text
xmlhttp.send(null);

function handler() {
    if(this.readyState == 4  && this.status == 200) {
        // use this.response (json/blob) or this.responseText (text) or
        // this.responseXML (document) to update a part of the page
    }
}
```

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THANK YOU

Vinay Joshi

Department of Computer Science and Engineering

vinayj@pes.edu

+91 80 2672 6622